

CLAIMS

What is claimed is:

1. A filter for use in engines or transmissions, comprising:
 - an outlet-side cover having a first wave-like region along the periphery of said outlet-side cover;
 - a filter media tray having a second wave-like region along the periphery of said filter media tray wherein said filter media tray second wave-like region is in a generally complementary alignment with said first wave-like region of said outlet-side cover;
 - a filter media fixed in a non-planar configuration between said first wave-like region of said outlet-side cover and said second wave-like region of said filter media; and
 - an inlet-side cover joined to said outlet-side cover, wherein said filter media and said filter media tray is between said inlet-side cover and said outlet-side cover.
2. The filter of claim 1, wherein said outlet-side cover further comprises a third wave-like region along the periphery of said outlet-side cover and wherein said filter media tray further comprises a fourth wave-like region along the periphery of said filter media tray that is in a generally complementary alignment with said third wave-like region of said outlet-side cover.
3. The filter of claim 1, wherein said outlet-side cover further comprises a third wave-like region along the periphery of said outlet-side cover that is on an opposite side of said outlet-side cover from said first wave-like region; and
said filter media tray further comprises a fourth wave-like region along the periphery of said filter media tray, wherein said fourth wave-like region of said filter media tray is in a generally complementary alignment with said third wave-like region of said outlet-side cover.

4. The filter of claim 1, wherein said outlet-side cover further comprises a first set of one or more filter media supports disposed within said outlet-side cover and said filter media tray further comprises a second set of one or more filter media supports disposed within said filter media.

5. The filter of claim 1, wherein said outlet-side cover further comprises a first set of one or more filter media supports disposed within said outlet-side cover and wherein said filter media tray further comprises a second set of one or more filter media supports disposed within said filter media tray wherein said first set of one or more filter media supports correspond to said second set of one or more filter media supports.

6. The filter of claim 1, wherein said filter media tray further comprises media retention means disposed along the periphery of said filter media tray.

7. The filter of claim 1, wherein said outlet-side cover further comprises media retention means disposed along the periphery of said outlet-side cover.

8. The filter of claim 1, wherein said filter media tray further comprises media retention means disposed along said second wave-like region of said filter media tray.

9. The filter of claim 1, wherein said outlet-side cover further comprises a crimp recess disposed along said outlet-side cover first wave-like region and wherein said filter media tray further comprises a crimp rib disposed along said filter media tray second wave-like region.

10. The filter of claim 1, further comprising a crimp recess disposed along the periphery of said outlet-side cover and a crimp rib disposed along the periphery of said filter media tray.

11. The filter of claim 1, wherein said inlet-side cover is metal.

12. A filter for use in engines or transmissions, comprising:
an outlet-side cover having a wave-like region along the periphery of said outlet-side cover and at least one media support disposed within said outlet-side cover;

a filter media tray having a wave-like region along the periphery of said filter media tray and at least one media support disposed within said filter media tray, wherein said wave-like region of the outlet-side cover are generally complementary in shape and alignment with said wave-like region of the filter media tray;

a filter media fixed in a wave-like configuration between said wave-like region of said filter media tray and said wave-like region of said outlet-side cover;
and

an inlet-side cover joined to said outlet-side cover wherein said filter media and said filter media tray is between said inlet-side cover and said outlet-side cover.

13. The filter of claim 12, wherein said filter media tray further comprises media retention means disposed along the periphery of said filter media tray.

14. The filter of claim 12, wherein said outlet-side cover further comprises media retention means disposed along the periphery of said outlet-side cover.

15. The filter of claim 12, wherein said filter media tray further comprises media retention means disposed along said second wave-like region of said filter media tray.

16. The filter of claim 12, wherein said outlet-side cover further comprises a crimp recess disposed along said outlet-side cover first wave-like region and wherein said filter media tray further comprises a crimp rib disposed along said filter media tray second wave-like region.

17. The filter of claim 12, further comprising a crimp recess disposed along the periphery of said outlet-side cover and a crimp rib disposed along the periphery of said filter media tray .

18. A filter for use in engines or transmissions, comprising:
an outlet-side cover having a first plurality of wave-like regions along the periphery of said outlet-side cover and a first set of filter media supports disposed within said outlet-side cover;
a filter media tray having a second plurality of wave-like regions along the periphery of said filter media tray and a second set of filter media supports disposed within said filter media tray, wherein said first plurality of wave-like regions of said outlet-side cover are generally complementary in shape and alignment with said second plurality of wave-like regions of said filter media tray;
a filter media fixed in a wave-like configuration between said first plurality of wave-like regions of said outlet-side cover and said second plurality of wave-like regions of said filter media tray; and
an inlet-side cover joined to said outlet-side cover wherein said filter media and said filter media tray is between said inlet-side and said outlet-side covers.

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19. the filter of claim 18, wherein said first set of one or more filter media supports corresponds in size and position to said second set of one or more filter media supports.

20. The filter of claim 18, wherein said filter media tray further comprises media retention means disposed along the periphery of said filter media tray.

21. The filter of claim 18, wherein said outlet-side cover further comprises media retention means disposed along the periphery of said outlet-side cover.

22. The filter of claim 18, wherein said filter media tray further comprises media retention means disposed along the periphery of said filter media tray and said outlet-side cover further comprises media retention means disposed along the periphery of said outlet-side cover.